

## Ictal and post-ictal psychiatric disturbances

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The true incidence and prevalence of psychiatric disorders in people with epilepsy is not known, with most studies carried out in referral centres or conducted retrospectively. However, no one who looks after patients with epilepsy can doubt a direct link between psychopathology and epilepsy when it comes to the ictally related behaviour changes.

Traditionally, psychiatric disturbances in epilepsy have been classified into those that are peri-ictal, and those that are inter-ictal. The latter are in theory unrelated in time to any seizure occurrence. Peri-ictal disturbances include pre-ictal dysphorias, ictal syndromes of depression and psychosis, and post-ictal syndromes. In clinical and even theoretical practice the term peri-ictal is preferred and is often used to define exactly what is meant by a seizure, to determine when a seizure ends, and to determine what the electrophysiological components of the post-ictal state are.

Using traditional psychiatric nomenclature, this review will discuss peri-ictal affective and psychotic disorders.

### Affective disorder

*Pre-ictal depression.* Prodromal moods of depression and irritability that occur hours or days before a seizure, and which may be relieved by the convulsion, are well known. Patients tend to report more depression on the days immediately preceding their seizures than on inter-ictal days. The length of the pre-ictal dysphoria can last from ten minutes to several days.

*Ictal depression.* Depressive moods can occur as part of an aura, rarely (about 1%), and are more common in with patients with temporal lobe epilepsy. Typically they are of sudden onset and can range in severity from mild sadness to profound helplessness or despair. No clear laterality effect has been noted.

*Post-ictal depression.* Post-ictal depression is not uncommon although its prevalence has never been estimated. It can last from hours to days and has features typical of a depressive syndrome. The density of the depression can be severe with some patients expressing suicidal thoughts. Suicide itself is not common unless associated with psychotic thinking (see below). Again, no laterality effect has

consistently been reported. There are a group of patients in whom post-ictal depression continues into a prolonged depressive illness and is essentially an inter-ictal depression that requires antidepressant treatment.

In many settings, post-ictal depression accompanies the existential despair of patients who have intractable seizures, although biological components are clearly contributory, as are drug-related effects.

### **Anxiety disorders**

Ictal fear and anxiety have been described and can be mistaken for panic disorder. Conversely, panic disorder is often misdiagnosed as an epileptic disorder, especially if there are non-specific temporal lobe epileptiform EEG abnormalities or there is a history of epilepsy. In general, ictal anxiety or fear is usually very stereotyped, with a rapid onset and of shorter duration than panic attacks. Patients with panic attacks often report symptoms such as staring blankly into space, or being out of touch with their environment, while patients with temporal lobe epilepsy often reveal evolution of the simple partial seizure into a complex partial seizure with some confusion and disturbance of consciousness and automatisms.

Post-ictal anxiety, like post-ictal depression, is not uncommon. Often it is biologically driven, as a feature of the temporal lobe syndrome, but it is also intertwined with fear of having further seizures, and the loss of confidence that goes with seizures in patients with intractable epilepsy. A self-reinforcing situation can occur in which a patient, on account of seizures, is fearful of leaving the house in case they have a seizure, they become anxious and hyperventilate, and this can increase the chances of having further seizures.

### **Peri-ictal psychoses**

*Ictal psychoses.* Psychotic symptoms which occur as a direct reflection of the ictus become prolonged in cases of non-convulsive status epilepticus, where the EEG reveals the diagnosis. Usually EEG studies performed during generalised (absence) status show generalised bilateral synchronous spike and wave activity, between 1–4 Hz. With complex partial seizure status, the EEG may show focal or bilateral epileptiform patterns with a slowing of the background. In these states, a wide range of psychopathology may be seen, including a mixture of affective and perceptual experiences, accompanied by automatisms, and fluctuating impaired consciousness. Amnesia would usually follow the episode.

Two types of complex focal status epilepticus are distinguished, a continuous form and a discontinuous or cyclical form. The latter consists of frequently recurring complex partial seizures. In between the seizures patients may or may not experience simple focal seizure symptoms, and consciousness may recover to near-normal states.

A simple focal status, or aura continua, may lead to complex hallucinations, thought disorder and affective symptoms. In such cases, the continuous epileptic activity is often restricted, and may not even be detected with EEG recordings.

In an ictally-driven psychosis, the clinical picture may reveal fluctuating levels of consciousness, and a range of paranoid and schizophrenia-like symptoms.

*Post-ictal psychosis.* This has to be distinguished from the deliria which occur post-ictally. In the latter, patients may often appear confused for up to 30 minutes following a seizure. They also sometimes report hallucinations but rarely delusions. This is an organic brain syndrome which usually resolves spontaneously, but during which time the patient may become combative and may need subtle restraint.

The most common and best investigated peri-ictal psychosis, however, is that occurring post-ictally with as many as 18% of patients with intractable seizures reported as experiencing one or more event.

The operational criteria for post-ictal psychosis are as follows:

1. Onset of confusional psychosis within a week of the return of apparently normal mental function
2. Duration of between one day and three months
3. A mental state characterised by a) clouding of consciousness, disorientation or delirium; b) delusions, hallucinations in clear consciousness; c) a mixture of a and b
4. No evidence of factors which may have contributed to the abnormal mental state: a) anticonvulsant toxicity; b) a previous history of inter-ictal psychosis; c) EEG evidence of status epilepticus; d) recent head injury, or alcohol or drug intoxication.

The most quoted series is that of Logsdail and Toone (1988) who described 14 patients, the majority with complex partial seizures and secondary generalisation, in whom the psychosis developed after an exacerbation of the seizure activity, usually following a cluster of seizures.

Most had a lucid interval of up to 1–2 days, but sometimes longer, between the restoration of an apparently normal mental state following the seizure, and the beginning of the psychosis. The EEG during the post-ictal psychosis is variable, sometimes appearing relatively normal, in others showing an increase in abnormalities.

The range for the length of the psychosis was up to 90 days, and many patients required psychotropic medication.

In their series, Logsdail and Toone followed patients for up to eight years and observed that the psychosis tended to recur. About 20% of patients will go on to develop a chronic psychosis over time.

Of most interest is the lucid interval between the cessation of the seizures and the onset of the psychosis. Relatives often describe this as the 'calm before the storm'. The psychosis, when it emerges, can be sudden and the behaviour can be extravagant. Typically, hallucinations and delusions are noted; prominent are persecutory and religious phenomena. Most patients have at least partial recall for their psychotic experiences, and because the mental state is often not one of confusion, suicidal ideas, which occur in about one-fifth of patients, may be acted upon. Well directed violent attacks are seen in about 25% of episodes.

*Treatment of ictally related psychiatric disorders.* A number of the psychopathologies discussed above are self-limiting, often with no direct psychiatric intervention required. The most problematic states are the post-ictal psychoses which can go on several days. Since these patients can become suicidal and express paranoid delusions of considerable intensity, it is often important to prescribe psychotropic medication. Generally, it is better to avoid neuroleptics if possible, since they can lower the seizure threshold leading to further seizures and exacerbation of the psychosis. In the first instance, benzodiazepines are recommended. Clobazam can be used either to abort a cluster of seizures, by administering it immediately after the initial seizure of a cluster, or after a cluster, with the first warning of any psychopathology. Relatives get to know the warning signs, which include irritability, sensitivity, mood lability and sleeplessness. If neuroleptic medications are to be used, those that lower the seizure threshold minimally are to be preferred. These include haloperidol, sulpiride and risperidone.

Obviously, crucial to the prevention of post-ictal psychosis is better control of the seizures. Post-ictal psychoses occurring in the setting of unilateral temporal lobe pathology are not a contra-indication for epilepsy surgery.

### **Forced normalisation**

Finally, in considering psychopathological states that seem linked to seizures, the converse state, where a psychopathology emerges when seizures are suppressed, needs to be included.

It was Landolt who noted that certain patients became psychotic when prescribed antiepileptic drugs (AEDs) which suppressed their seizures. During the period of psychosis the EEG paradoxically normalised, losing its epileptic features. With the return of seizures, the EEG became abnormal again and the psychosis would resolve. Landolt used the term forced normalisation to describe this phenomenon. Paradoxical normalisation is another term. These are EEG terms; the accompanying clinical picture is better referred to as alternative psychosis, a name given by Tellenbach. It is now acknowledged that during these states the EEG does not have to fully normalise, or seizures completely cease.

These phenomena have become more frequent in recent times following the introduction of powerful AEDs which are given to patients with intractable seizures, and can render them seizure free. The clinical pictures vary from paranoid psychoses resembling schizophrenia-like states, to episodes of irritability and conduct disturbance in children, to presentations with non-epileptic seizures. The majority of cases, however, are productive paranoid states, and require intervention. Affective symptoms are frequently intermingled with the psychotic symptoms.

Treatment is either by removal of the AED with the resumption of seizures, or by neuroleptic or antidepressant medication, depending upon the clinical picture. Patients who have had an episode of alternative psychosis with one drug are susceptible to having it again with other drugs. In these cases it is advisable to start any new drug at low oral doses and increase the dose slowly, asking the patient or relative to report any developing psychopathology.

### **Further reading**

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